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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,295	01/16/2002	Karen Swider Lyons	83,068	2321

7590 02/03/2006

Naval Research Laboratory
Code 1008.2
4555 Overlook Ave., S.W.
Washington, DC 20375-5320

EXAMINER

BOS, STEVEN J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,295	LYONS ET AL.	
	Examiner	Art Unit	
	Steven Bos	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11 and 17-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11 and 17-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1754

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 17, 2005 has been entered.

The amendment filed November 17, 2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "This listing of claims will replace all prior versions, and listings, of claims in the application."

Applicant is required to cancel the new matter in the reply to this Office Action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19,25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claims 19,25, the abbreviation of "ccm" is not described in the instant

Art Unit: 1754

specification as to what its definition is nor is "ccm" well known in the art as to what its meaning or definition is.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19,25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 19,25, "ccm" is indefinite as to what this abbreviation or symbol is or stands for as it is not known in the art nor is it defined in the instant specification.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1754

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11,17,18,19,23,24,25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thome '707 in view of either Nishihara '181 or the Chemical Principles reference to show a statement of fact.

Thome suggests the process of heating a metal oxide, eg. V_2O_5 , at 550°C for about 8 hours in a flowing gas mixture of air and water vapor at what appears to be the instantly claimed flow rate, since it is not clear what the abbreviation "ccm" is or stands for, and then cooling the metal oxide. The metal oxide appears to have the instantly claimed surface area; in any event the size of an article ordinarily is not a matter of invention, *In re Rose* 105 USPQ 237. See cols. 5,6. Air itself contains water vapor, ie. H_2O gas. See Nishihara, col. 2, line 23 and the Chemical Principles reference.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, *In re Malagari*, 182 USPQ 549.

Claims 11,19,24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howard, Jr. '477 in view of either Nishihara '181 or the Chemical Principles reference to show a statement of fact.

Art Unit: 1754

Howard, Jr. suggests the process of heating a metal oxide sample, eg. LiMn_2O_4 , in flowing air at the instantly claimed flow rate, since it is not clear what the abbreviation "ccm" is or stands for. Air contains water vapor or H_2O gas according to Nishihara, col. 2, line 23 and the Chemical Principles reference. The metal oxide sample appears to have the instantly claimed surface area; in any event the size of an article ordinarily is not a matter of invention, *In re Rose*, supra.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, *In re Malagari*, 182 USPQ 549.

Claims 11,17,19,23,24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chambers '005.

Chambers suggests the process of heating a sample of V_2O_5 at 500°C in a stream of air saturated with water vapor, ie. a flowing gas mixture of O_2 and H_2O , at or overlapping the instantly claimed flow rate, since it is not clear what the abbreviation "ccm" is or stands for. See col. 4 and example 1. The sample appears to have the instantly claimed surface area; in any event the size of an article ordinarily is not a matter of invention, *In re Rose*, supra.

Art Unit: 1754

Claims 11,17,18,20-22,24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuka '637 in view of either Nishihara '181 or the Chemical Principles reference to show a statement of fact.

Shizuka suggests the process of heating a metal oxide, eg. Mn_2O_3 , Co_3O_4 , in air to 500°C for 6 hours at a rate of 5°C/min and then cooling the metal oxide to room temperature, ie. ambient, at a rate of 5°C/min. The metal oxide appears to have the instantly claimed surface area; in any event the size of an article ordinarily is not a matter of invention, *In re Rose*, supra. See examples 1-5,8. Air contains water vapor, ie. H_2O gas. See Nishihara, col. 2, line 23 and the Chemical Principles reference.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, *In re Malagari*, 182 USPQ 549.

Applicant's arguments filed November 17, 2005 have been fully considered but they are unpersuasive.

Applicant argues that Thome does not teach a method of introducing defects in V_2O_5 or other metal oxides.

However the instant claims are not so limited as they do not require the introduction of defects in V_2O_5 or other metal oxides. Also, since Thome suggests the same process as is instantly claimed such defects would appear to also be introduced into V_2O_5 by the taught process.

Art Unit: 1754

Applicant argues that Thome requires the presence of ammonium metavanadate in its process.

However the instant claims do not exclude such presence due to the comprising claim language.

Applicant argues that Howard does not disclose the present invention because it does not involve introducing a molecule (or group) between two other molecules (or groups).

However the instant claims do not exclude such introduction and furthermore Howard does treat a metal oxide, eg. Mn_2O_3 , alumina, TiO_2 .

Applicant argues that Howard does not teach a method of introducing defects in V_2O_5 or other metal oxides.

However the instant claims are not so limited as they do not require the introduction of defects in V_2O_5 or other metal oxides. Also, since Howard suggests the same process as is instantly claimed such defects would appear to also be introduced into the metal oxides by the taught process.

Applicant argues that Chambers neither teaches nor discloses the present process for preparing a metal oxide for a battery cathode with increased capacity and that one skilled in the art of preparing a metal oxide for use as a battery cathode with increased capacity would not be motivated to use a method of extracting V_2O_5 from raw materials as a reference for a process for preparing a metal oxide for a battery cathode with increased capacity.

Art Unit: 1754

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Applicant argues that Shizuka does not disclose the present invention because it does not involve introducing a molecule into a spinel structure.

However the instant claims do not exclude such introduction and furthermore Shizuka does treat a metal oxide, eg. Mn_2O_3 , Co_3O_4 .

Applicant argues that Shizuka does not teach a method of introducing vacancies into metal oxides during heating under $\text{O}_2/\text{H}_2\text{O}$.

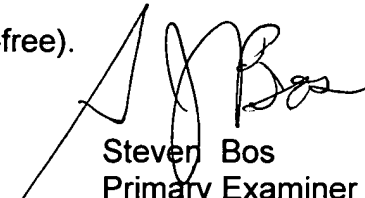
However the instant claims are not so limited as they do not require the introduction of vacancies into metal oxides. Also, since Shizuka suggests the same process of treating metal oxides as is instantly claimed such vacancies would appear to also be introduced into the metal oxides by the taught process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Bos whose telephone number is 571-272-1350. The examiner can normally be reached on M-W,F, 8AM to 6PM.

Art Unit: 1754

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven Bos
Primary Examiner
Art Unit 1754

sjb